

# Operating Instructions



## Zone 1 Ex e Field Device Couplers

> 9411/11



## 1 Contents

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## 2 General Information

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### 2.1 Manufacturer

R. STAHL Schaltgeräte GmbH  
 Am Bahnhof 30  
 74638 Waldenburg  
 Germany

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### 2.2 Operating Instructions Information

ID-No.: 161936 / 941160310020  
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 We reserve the right to make technical changes without notice.

### 2.3 Definitions of terms

#### Trunk

The trunk is the main bus line when describing fieldbus topology.

#### Terminating resistor

Both ends of the trunk are connected with a terminating resistor (100 ohms + 1 µF).

#### Spur

A spur connects the trunk with the field devices. Spurs can be further subdivided into additional branches.

### Fieldbus power supply

The fieldbus power supply feeds DC power to field devices on the fieldbus and effects impedance adaptation between the fieldbus and the main power. Electrically, the host behaves the same as a field device.

### Field device

Field devices are often supplied from the fieldbus, however, they can also have their own power supply (4-wire device).

### Host

The host is the “brain” of the fieldbus. In general the host is a process control system (PCS), a programmable logic controller (PLC) or a PC.

### Segment

A segment in this context indicates the entire unit consisting of trunk, terminating resistors and all spurs.

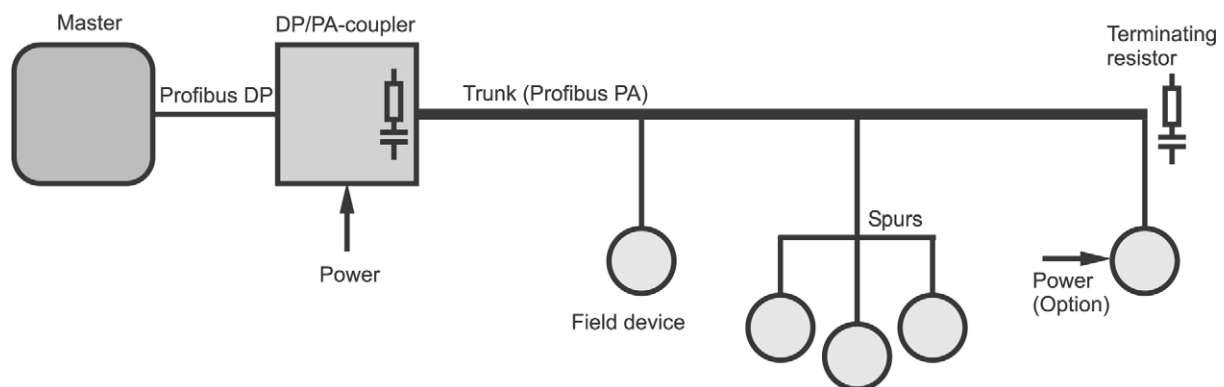
### DP/PA coupler

The DP/PA coupler connects a Profibus PA segment with a Profibus DP. The fieldbus power supply is integrated in the DP/PA coupler.

### Master

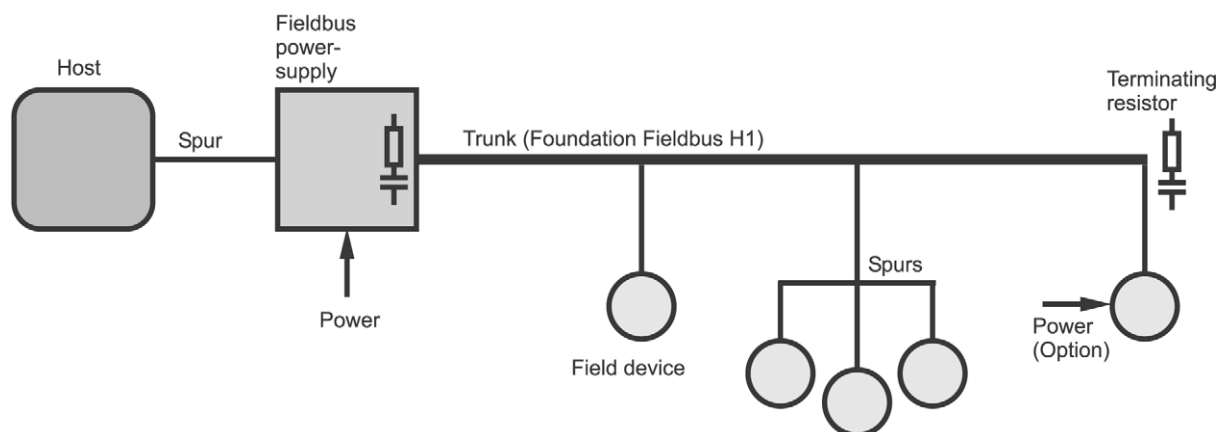
The Profibus master is generally a process control system (PCS), a programmable logic controller (PLC) or a PC.

### Structur of a Profibus PA segment



11462E02

### Structur of a Foundation Fieldbus H1 segment



11463E02

### 3 General Safety Instructions

#### 3.1 Safety Instructions for Assembly and Operating Personnel

The operating instructions contain basic safety instructions which are to be observed during installation, operation and maintenance. Non-observance will endanger persons, plant and the environment.

##### **WARNING**

##### **Danger due to unauthorised work being performed on the device!**

- ▷ There is a risk of injury to persons and damage to equipment.
- ▶ Assembly, installation, commissioning, operation and maintenance must only be performed by personnel who are both authorised and suitably trained for this purpose.

##### **Before assembly/commissioning:**

- ▶ Read through the operating instructions.
- ▶ Give adequate training to the assembly and operating personnel.
- ▶ Ensure that the contents of the operating instructions are fully understood by the personnel in charge.
- ▶ The national installation and assembly regulations (e.g. IEC/EN 60079-14) apply.

##### **When operating the devices:**

- ▶ Ensure the operating instructions are made available on location at all times.
- ▶ Observe safety instructions.
- ▶ Observe national safety instructions and accident prevention regulations.
- ▶ Only run the device according to its performance data.
- ▶ Servicing/maintenance or repair work which are not described in the operating instructions must not be performed without prior agreement with the manufacturer.
- ▶ Any damage may render explosion protection of the device null and void.
- ▶ No changes to the device impairing their explosion protection are permitted.
- ▶ Install and use the device only if it is undamaged, dry and clean.

##### **If you have questions:**

- ▶ Contact the manufacturer.

#### 3.2 Warnings

Warnings are sub-divided in these operating instructions according to the following scheme:







##### **WARNING**

##### **Type and source of the danger!**






- ▷ Possible consequences.
- ▶ Measures to avoid danger.

They are always identified by the signalling word “WARNING” and sometimes also have a symbol which is specific to the danger involved.

### 3.3 Symbols Used

	Action request: Describes actions to be carried out by the user.
	Reaction sign: Describes the results or the reactions to the actions taken.
	Bullet
	Sentinel: Describes the notes and recommendations.
	Warning sign; danger from energised parts!
	Warning sign: Danger due to an explosive atmosphere!




## 4 Designated Use

 <b>WARNING</b>	
<b>Use the device for its intended purpose only!</b>  Otherwise, the manufacturer's liability and warranty expire.  Only use the device under the operating conditions described in the operating instructions.  The device must be used in areas subject to explosion hazards only according to these operating instructions.	
	The field device coupler 9411/11-...-30 has four spurs. The field device coupler 9411/11-...-40 has eight spurs.

The Series 9411/11 field device coupler is suitable for use in Zone 1, 2, 21 and 22 hazardous areas.

It is used for connecting up to four, respectively, eight non-intrinsically safe field devices to a non-intrinsically safe trunk.

#### Intended use

-  For all fieldbuses with a IEC 61158-2 physical layer, e.g. Foundation Fieldbus H1 and Profibus PA.
-  For non-intrinsically safe trunks, Ex e connections.
-  For non-intrinsically safe spurs: Ex e connections.

## Overview of explosion protection for field device coupler, trunk and spurs

Field device coupler Ex e / Ex e	Zone 0	Zone 1	Zone 2	Zone 21	Zone 22	non-hazardous area
9411/11-210-30, 9411/11-220-30, 9411/11-210-40, 9411/11-220-40, with enclosure	not permitted	Ex e enclosure required	Enclosure as per IEC/EN 60079-15 required	Enclosure as per IEC/EN 61241-1 required	Enclosure as per IEC/EN 61241-1 required	o.k.
9411/11-211-30, 9411/11-221-30 with polyester enclosure 8146/.61 9411/11-211-40, 9411/11-221-40 with polyester enclosure 8146/.71	not permitted	o.k.	o.k.	o.k.	o.k.	o.k.
9411/11-212-30, 9411/11-222-30 with stainless steel enclosure 8125/.61 9411/11-212-40, 9411/11-222-40 with stainless steel enclosure 8125/.71						
Trunk	not permitted	Ex e	Ex nA	Ex eD	Ex nD	o.k.
Spurs	not permitted	Ex e	Ex nA	Ex eD	Ex nD	o.k.



The R. STAHL enclosure Series 8146 (polyester), 8125 (sheet steel or stainless steel), 8126 (stainless steel) meet the requirements.

### **WARNING**

#### **When mounting in an Ex e enclosure:**

- Affix an indication label (in accordance with IEC/EN 60079-7):  
“Do not open under voltage.”

### **WARNING**

#### **When mounting in an Ex e enclosure acc. to IEC/EN 61241-1 (for Zone 21 or 22):**

- Attach information plate:  
“Do not open in potentially explosive dust atmospheres!”

## 5 Technical Data

Explosion protection																			
Coupler mounted on DIN rail																			
Gas explosion protection																			
ATEX	Ⓔ II 2 G Ex mb eb IIC T4																		
IECEX	Ex mb eb IIC T4																		
Coupler in the standard enclosure																			
Gas explosion protection																			
ATEX	Ⓔ II 2 G Ex mb eb IIC T4																		
IECEX	Ex mb eb IIC T4																		
Dust explosion protection																			
ATEX	Ⓔ II 2 D Ex tD A21 IP 6X T80 °C																		
IECEX	Ex tD A21 IP 6X T80 °C																		
Certificates																			
ATEX	BVS 06 ATEX E 003 X																		
IECEX	IECEX BVS 08.0056 X																		
Installation	in Zones 1 and 2, Zones 21 and 22 (dust), Class I, Zones 1 and 2, Class I Division 2 and in the safe area suitable enclosure neccessary (e.g. R. STAHL Series 8146 or Series 8125)																		
Data transmission																			
between trunk and spurs	passive, no repeater function																		
Power supply	not required, the Field Device Coupler is powered from the trunk																		
Trunk, non-intrinsically safe / Ex e																			
Connections	2 trunk connections (in, out), internally bridged																		
Minimum input voltage	10.7 V acc. to FF-846  Note: this guarantees an output voltage (spurs) at full load of min. 9.3 V																		
Rated operational voltage	9 ... 32 V																		
Undervoltage monitoring	U < 12 V, spurs deenergized																		
Max. current consumption	<table><tr><td></td><td><b>9411/11-...-30</b> (4 spurs)</td><td><b>9411/11-...-40</b> (8 spurs)</td></tr><tr><td>0 mA each spur</td><td>25 mA</td><td>25 mA</td></tr><tr><td>20 mA each spur</td><td>105 mA</td><td>185 mA</td></tr><tr><td>41 mA each spur</td><td>189 mA</td><td>353 mA</td></tr><tr><td>3 or 7 spurs each at 41 mA, 1 spur with short-circuit</td><td>198 mA</td><td>362 mA</td></tr><tr><td>all spurs with short-circuit</td><td>75 mA</td><td>75 mA</td></tr></table>		<b>9411/11-...-30</b> (4 spurs)	<b>9411/11-...-40</b> (8 spurs)	0 mA each spur	25 mA	25 mA	20 mA each spur	105 mA	185 mA	41 mA each spur	189 mA	353 mA	3 or 7 spurs each at 41 mA, 1 spur with short-circuit	198 mA	362 mA	all spurs with short-circuit	75 mA	75 mA
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0 mA each spur	25 mA	25 mA																	
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all spurs with short-circuit	75 mA	75 mA																	
Max. power dissipation	1.1 W																		
Indication	LED green „PWR“ (U ≥ 12 V on trunk)																		
Reverse polarity protection	yes																		
Max. number of Field Device Couplers per segment	4																		

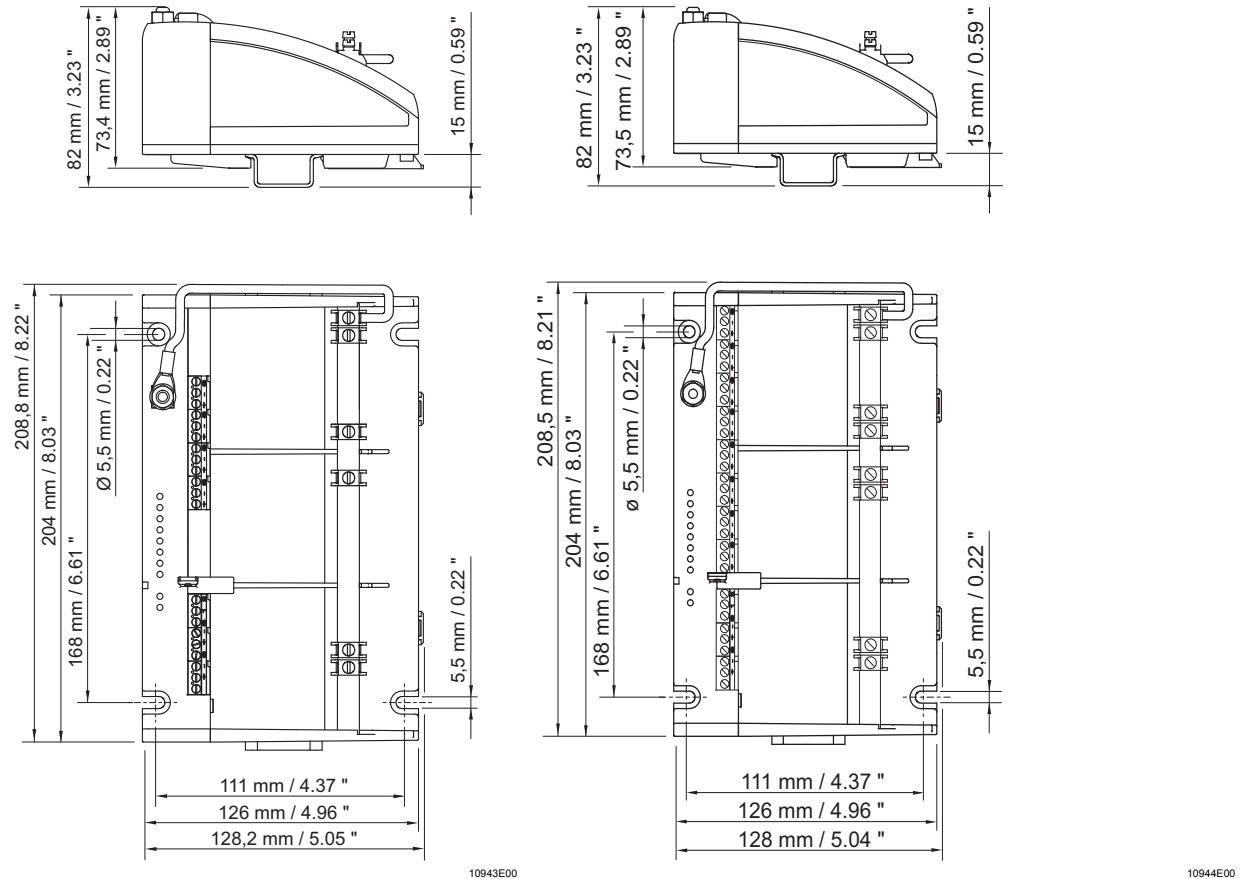
Spurs, Ex e			
Quantity	4 / 8		
Number of field devices	1 per spur		
Max. cable length	120 m		
Current range	0 ... 41 mA per spur		
Max. short-circuit current	50 mA		
Power management	When the trunk voltage exceeds 12 V the spurs are energized one after the other to avoid high starting current resulting from field devices. A short circuit detected on a spur will deenergize the respective spur until the short-circuit is removed. Regardless how many spurs are short-circuited the trunk is loaded with max one spur short-circuit current. Thus the trunk current and the device power dissipation are minimized under all conditions.		
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 class B); NAMUR NE 21 (IEC/EN 61000-4-1...6, 8 and 11; EN 55022 class B)		
Ambient conditions			
Ambient temperature	Coupler mounted on DIN rails:		- 40 ... + 75 °C
	Coupler built in a standard enclosure:		- 20 ... + 70 °C
Storage temperature	- 40 ... + 75 °C		
Relative humidity (no condensation)	< 95 %		
Mechanical data			
Terminals	3 pole (+, -, screen)	screw terminals trunk / spurs Ex e	spring cage terminals trunk / spurs Ex e
	rigid	0.2 ... 4 mm <sup>2</sup>	0.5 ... 2.5 mm <sup>2</sup>
	flexible	0.25 ... 2.5 mm <sup>2</sup>	0.5 ... 2.5 mm <sup>2</sup>
	flexible, end covering sleeves	0.25 ... 2.5 mm <sup>2</sup>	0.5 ... 1.5 mm <sup>2</sup>
Assembly	on DIN rail, EN 50022 (NS 35/15, NS 35/7.5) or mounting plate		
Installation position	vertical or horizontal		
Degree of protection			
Enclosure	IP30		
Ex e terminals	IP20		
Fire protection class (UL-94)	HB		
Field Device Coupler in a standard enclosure			
Version	material	enclosure Series	Field Device Coupler
	polyester	8146/.061	9411/11-211-30
			9411/11-221-30
		8146/.S71	9411/11-211-40
			9411/11-221-40
	stainless steel	8125/.061	9411/11-212-30
			9411/11-222-30
		8125/.071	9411/11-212-40
			9411/11-222-40
Degree of protection			
Degree of protection	IP66		
Cable glands	cable glands Series 8161		4 / 8 x M20 black (Ex e spurs) 2 x M20 black (Ex e trunk) 1 x M16 black (earth)
	breathing gland Series 8162		1 x M25



Additional technical data for layout and designs: see the data sheet

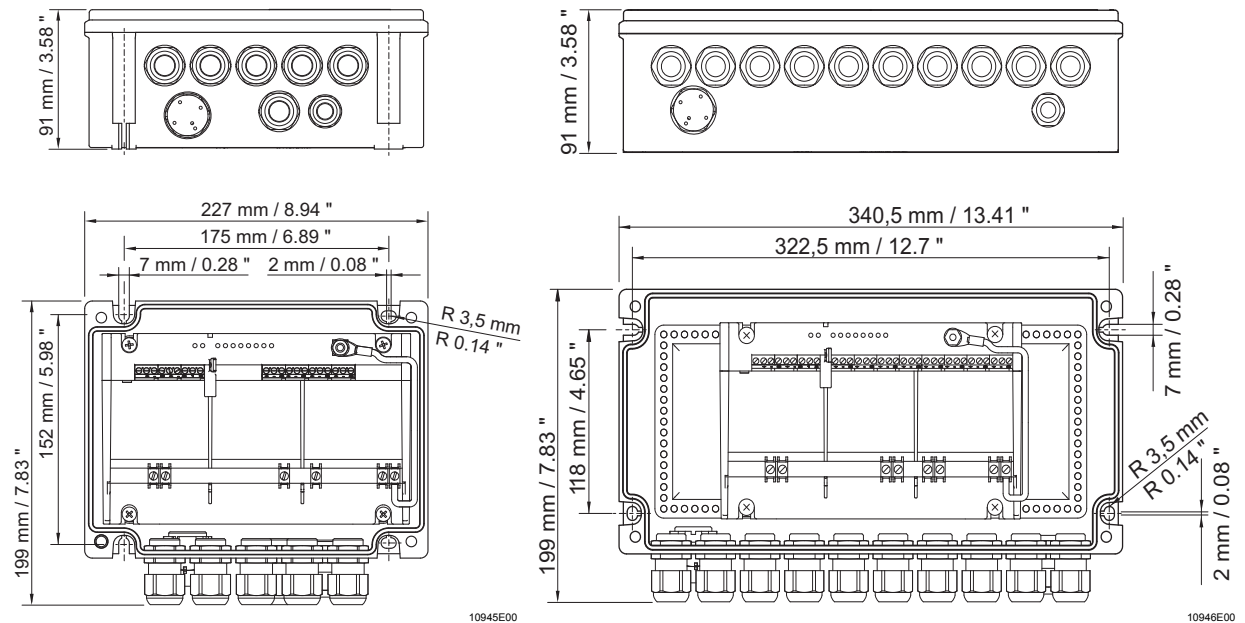


**Dimensional Drawings** (All Dimensions in mm / inches) - Subject to Alterations



**9411/11-210-30 and 9411/11-220-30**  
Field Device Coupler, 4 Spurs, without enclosure

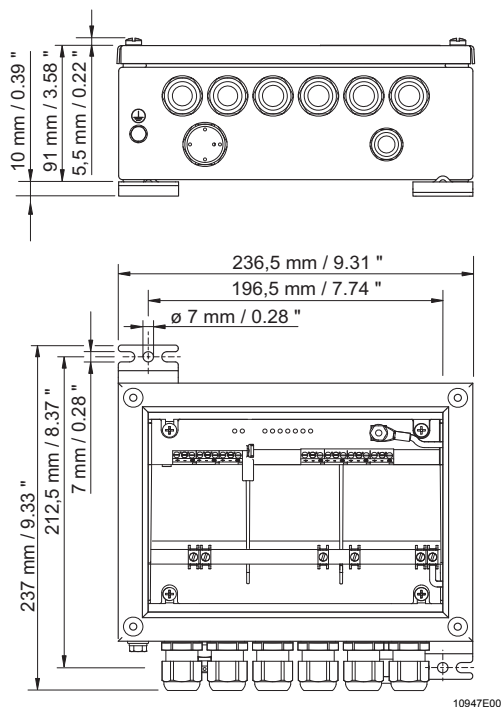
**9411/11-210-40 and 9411/11-220-40**  
Field Device Coupler, 8 Spurs, without enclosure



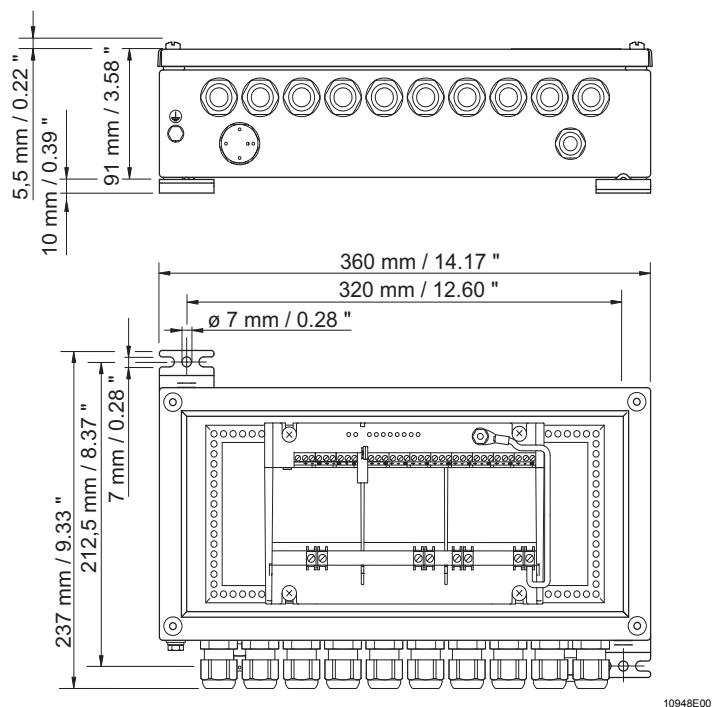
**9411/11-211-30 and 9411/11-221-30**  
Enclosure 8146/061 incl. Field Device Coupler

**9411/11-211-40 and 9411/11-221-40**  
Enclosure 8146/S71 incl. Field Device Coupler

## Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



**9411/11-212-30 and 9411/11-222-30**  
Enclosure 8125/061 incl. Field Device Coupler



**9411/11-212-40 and 9411/11-222-40**  
Enclosure 8125/071 incl. Field Device Coupler

## 6 Functional Description

The field device coupler is used for connecting up to four, respectively, eight non-intrinsically safe field devices to a non-intrinsically safe trunk.

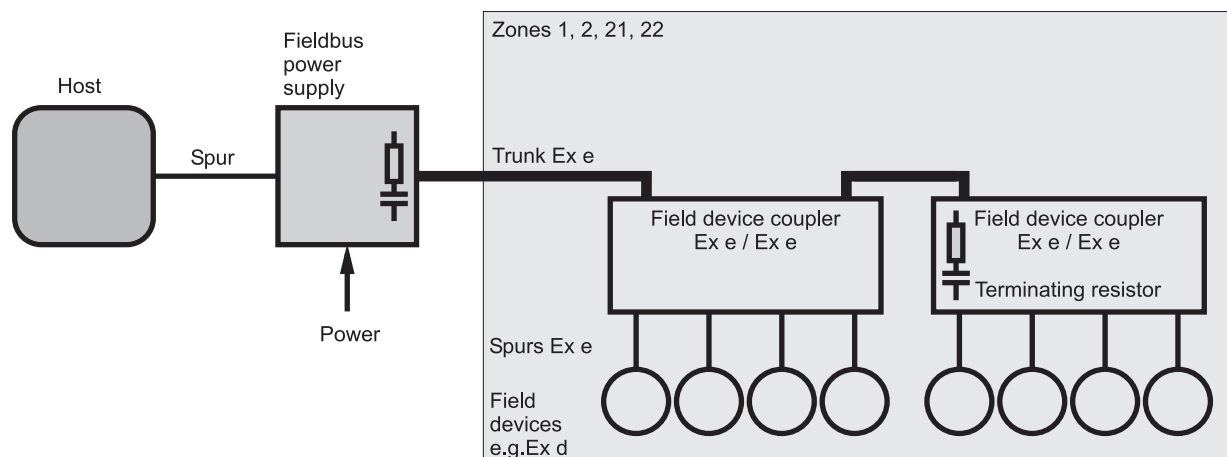
The field device coupler functions at the physical level only, e.g., it functions independently of the protocol used. It can therefore be used for every fieldbus that is compliant with IEC 61158-2. At this time, these include the Foundation Fieldbus H1 and the Profibus PA.

Each field device can be supplied with a maximum of 40 mA current. As short circuit protection, each spur features a 50 mA current limiting function.

A termination resistor is built-in and can be activated/deactivated via a jumper.

Cable shield can either be capacitively or directly earthed.

The trunk voltage connecting to the field device coupler is monitored for undervoltage ( $< 12\text{ V}$ ) and indicated by a LED. Other LEDs indicate the status of the spurs.



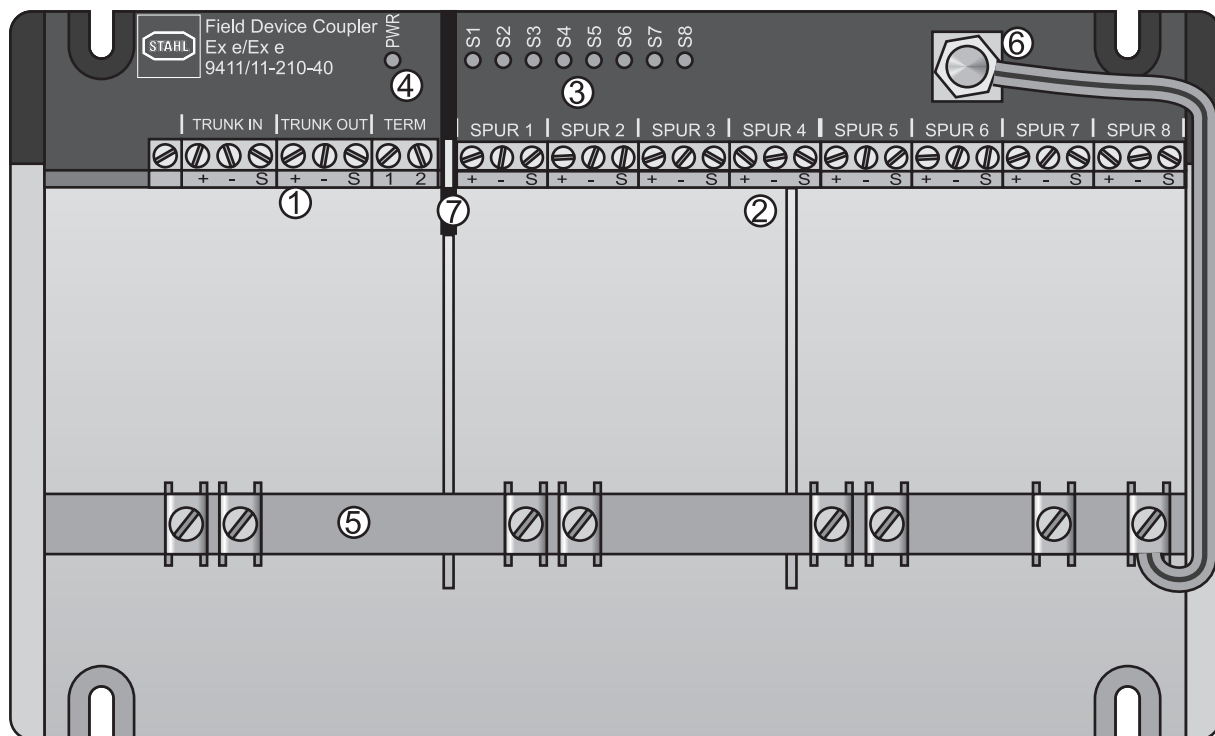
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### Power management

As soon as the voltage of 12 V on the trunk is exceeded, the spurs are activated one after the other to prevent a high start-up current by the field devices. In the event of a short-circuit, the spur in question is deactivated until the short-circuit is eliminated.

If several spurs are affected by a short-circuit, the trunk is loaded only with maximum one short-circuit current. This minimises the current consumption of the trunk and the power loss of the coupler under all operating conditions.

## 7 Device Design



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1	Ex e area; Ex e connection terminals for the trunk and the jumper for activating the terminating resistor.
2	Ex e area; Ex e connection terminals for spur 1 ... spur 4, resp., spur 1 ... spur 8
3	Operation indicating LEDs for spur 1 ... spur 4, resp., spur 1 ... spur 8
4	Operation indicating LEDs for PWR (power)
5	Cable screen bus bar for cable shields with slidable terminals
6	Ground bolt for earthing
7	Park position for jumper

## 8 Transport, Storage and Disposal

### Transport

- Shock-free in its original carton, do not drop, handle carefully.



### Storage

- Store in a dry place in its original packaging
- Permitted temperature range for storage in original packaging: - 40 °C ... + 75 °C


### Disposal

- Ensure environmentally friendly disposal of all components according to the legal regulations.



## 9 Assembly

⚠ <b>WARNING</b>	
	<b>Incorrectly installed components!</b>
	<ul style="list-style-type: none"> <li>▷ Explosion protection cannot be guaranteed any more if the components are incorrectly installed.</li> <li>▶ Carry out the assembly in strict accordance with the instructions and national safety and accident prevention regulations (e.g. IEC/EN 60079-14).</li> </ul>
	Do not select a mounting location that necessitates the cable lengths that exceed the maximal permissible values (see chapter 10.2, Cable lengths for trunk and spurs).).

### 9.1 Mounting with enclosure


	Relevant to field device couplers 9411/11-211-30, resp. 9411/11-221-30 in polyester enclosure 8146/.61 and 9411/11-211-40, resp. 9411/11-221-40 in polyester enclosure 8146/.71 and 9411/11-212-30, resp. 9411/11-222-30 in stainless steel enclosure 8125/.61 and 9411/11-212-40, resp. 9411/11-222-40 in stainless steel enclosure 8125/.71
▶ Installation with screws (hole spacing: see chapter 5, Technical data)	

### 9.2 Mounting without enclosure

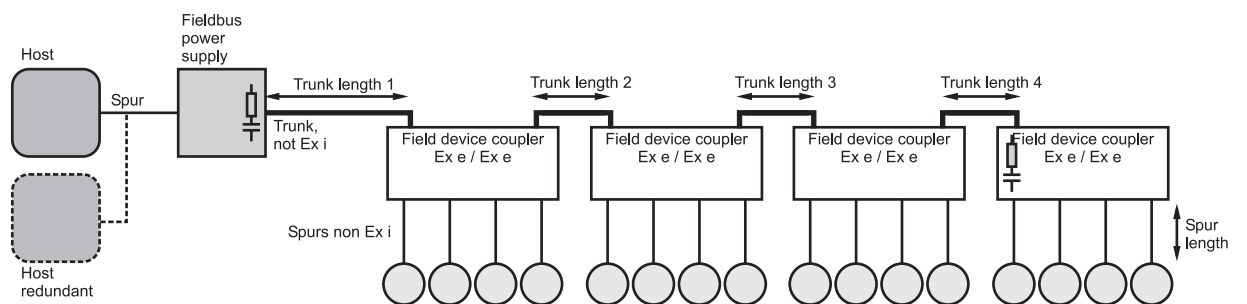
	Relevant to field device couplers 9411/11-210-30, resp. 9411/11-220-30 and 9411/11-210-40, resp. 9411/11-220-40
	Field device couplers without enclosures are always delivered ready for DIN rail mounting.

- ✗ For installation in non-hazardous areas, e.g. in normal switch cabinet or open rack.
- ✗ For installation in an enclosure not mentioned above.

## 10 Installation

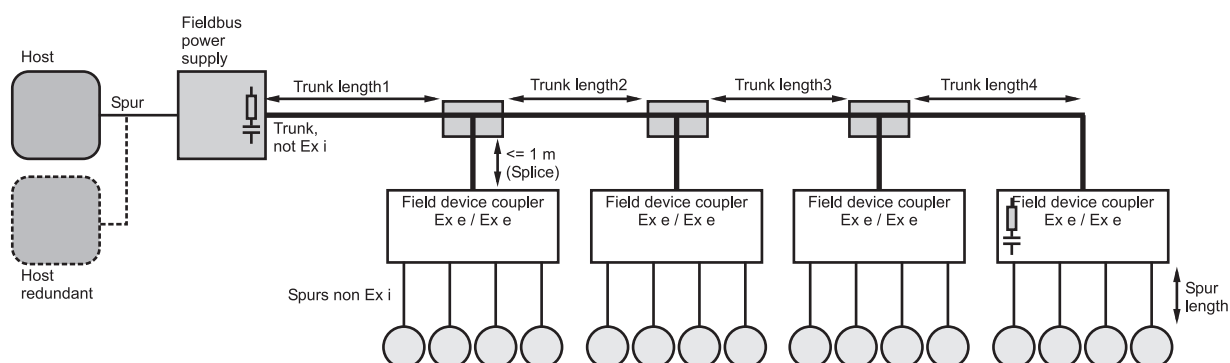
<b>⚠ WARNING</b>	
	<p><b>Incorrectly installed components!</b></p> <ul style="list-style-type: none"> <li>Explosion protection cannot be guaranteed any more if the components are installed incorrectly.</li> <li>Carry out the installation in strict accordance with the instructions and national safety and accident prevention regulations (e.g. IEC/EN 60079-14).</li> </ul>

### 10.1 Examples of fieldbus segment topologies



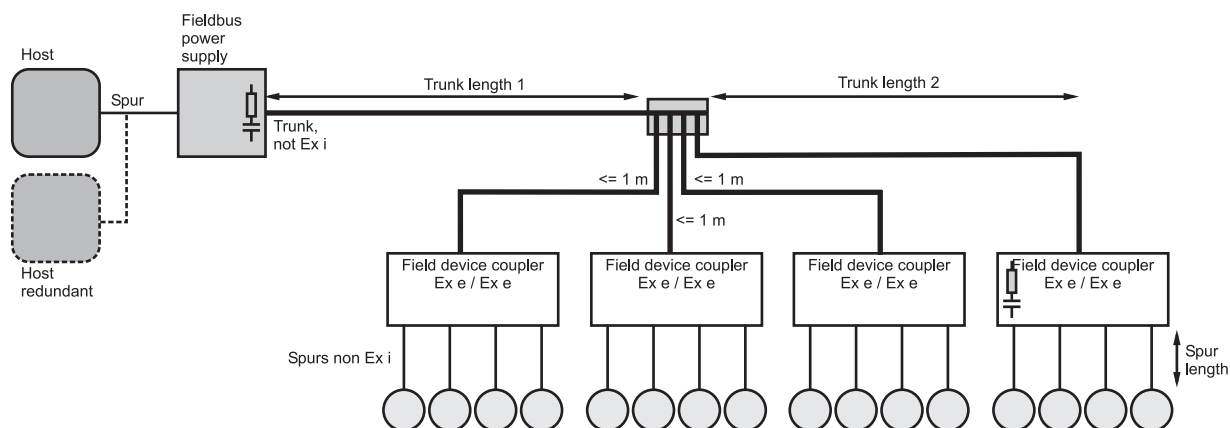
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Fieldbus segment with “daisy chain structure“. The trunk is looped through the field device couplers.



11194E02


Fieldbus segment in which the field device couplers are connected to the trunk with junction boxes (T-connectors).




11195E02


Fieldbus segment with star structure.

## 10.2 Cable lengths for trunk and spurs in accordance with IEC 61158-2, Annex B (without considering the explosion protection)

	The maximum length for all cables (all trunks, all spurs) per segment must not exceed 1900 m.
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	Number of all field devices on the segment, including host(s)				
	1 ... 12	13 ... 14	15 ... 18	19 ... 24	25 ... 30
Max. cable length for spurs, 1 field device per spur	120 m	90 m	60 m	30 m	1 m
Max. cable length for spurs, 2 field devices per spur (e.g. for redundant hosts)	90 m	60 m	30 m	1 m	1 m

	The actual trunk and spur lengths can be shorter due to voltage drop.
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	The following generally applies: Spurs should be kept as short as possible. Maximum spur length = 120 m
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## 10.3 Examples of cable lengths

### Cable lengths for trunk with 12 field devices with a current consumption of 15 mA:

Assumption:



- ✗ Fieldbus power supply with  $U_{out} > 25 \text{ V}$  /  $I_{out} > 350 \text{ mA}$ .
- ✗ Current consumption of host is 20 mA.
- ✗ Type A fieldbus cables (loop resistance: 48 ohms/1000 m) are used.
- ✗ Two field device couplers lie at the end of the trunk.
- ▷ Maximum trunk length: approx. 1000 m.

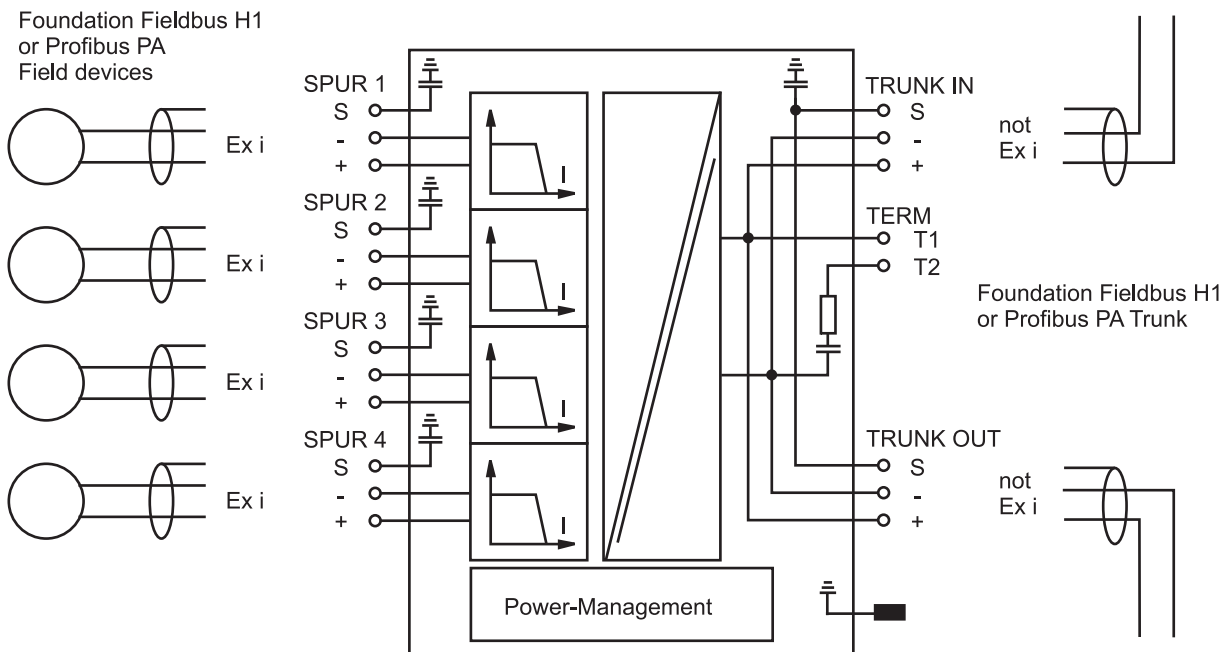
### Cable length for trunk with 16 field devices with a current consumption of 15 mA:

Assumption:

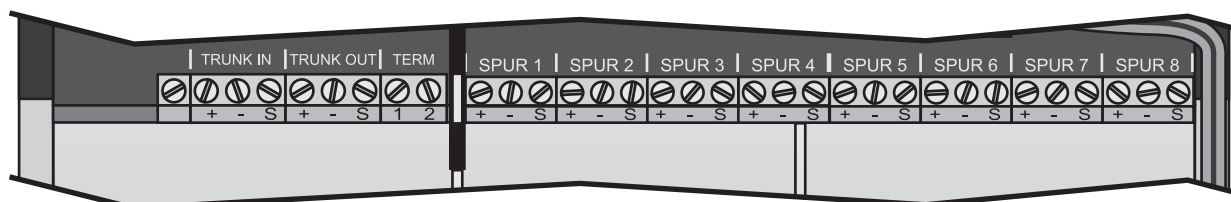
- ✗ Fieldbus power supply with  $U_{out} > 25 \text{ V}$  /  $I_{out} > 350 \text{ mA}$ .
- ✗ Current consumption of host is 20 mA.
- ✗ Type A fieldbus cables (loop resistance: 48 ohms/1000 m) are used.
- ✗ Four field device couplers lie at the end of the trunk.
- ▷ Maximum trunk length: approx. 800 m

## 10.4 Connection



 <b>WARNING</b>	
	<b>Enclosure is not covered!</b> <ul style="list-style-type: none"> <li>▶ Explosion protection is not guaranteed any longer.</li> <li>▶ The fieldbus must be deactivated before opening the cover.</li> <li>▶ Secure the fieldbus against unauthorised activation.</li> </ul>



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11182E00

	TRUNK IN and TRUNK OUT (+,-,S) are connected through internally in the field device coupler.
	Only one field device can be connected per spur connection.

### Trunk and Spurs

- ▶ Disconnect the fieldbus from the power supply.
- ▶ Open enclosure.
- ▶ Insert leads in the corresponding terminals:  
 TRUNK IN: Lead from host or fieldbus power supply.  
 TRUNK OUT: If applicable, lead to the next field device coupler.  
 SPURS: Leads to the field devices.
- ▶ Close/screw tight the terminals.
- ▶ Close cover/enclosure.



## 10.5 Earthing

### Field device coupler without enclosure



The field device coupler is not required to be connected to earth.

If the cable shields are to be capacitively earthed (by connecting to the “S” marked terminals):

- ▶ Connect the earthing bolt to the cable screen bus bar (delivery condition from factory).
- ▶ Connect the cable screen bus bar to earth.

### Field device coupler with metal enclosure


- ▶ Connect the enclosure to earth via the shortest possible route.

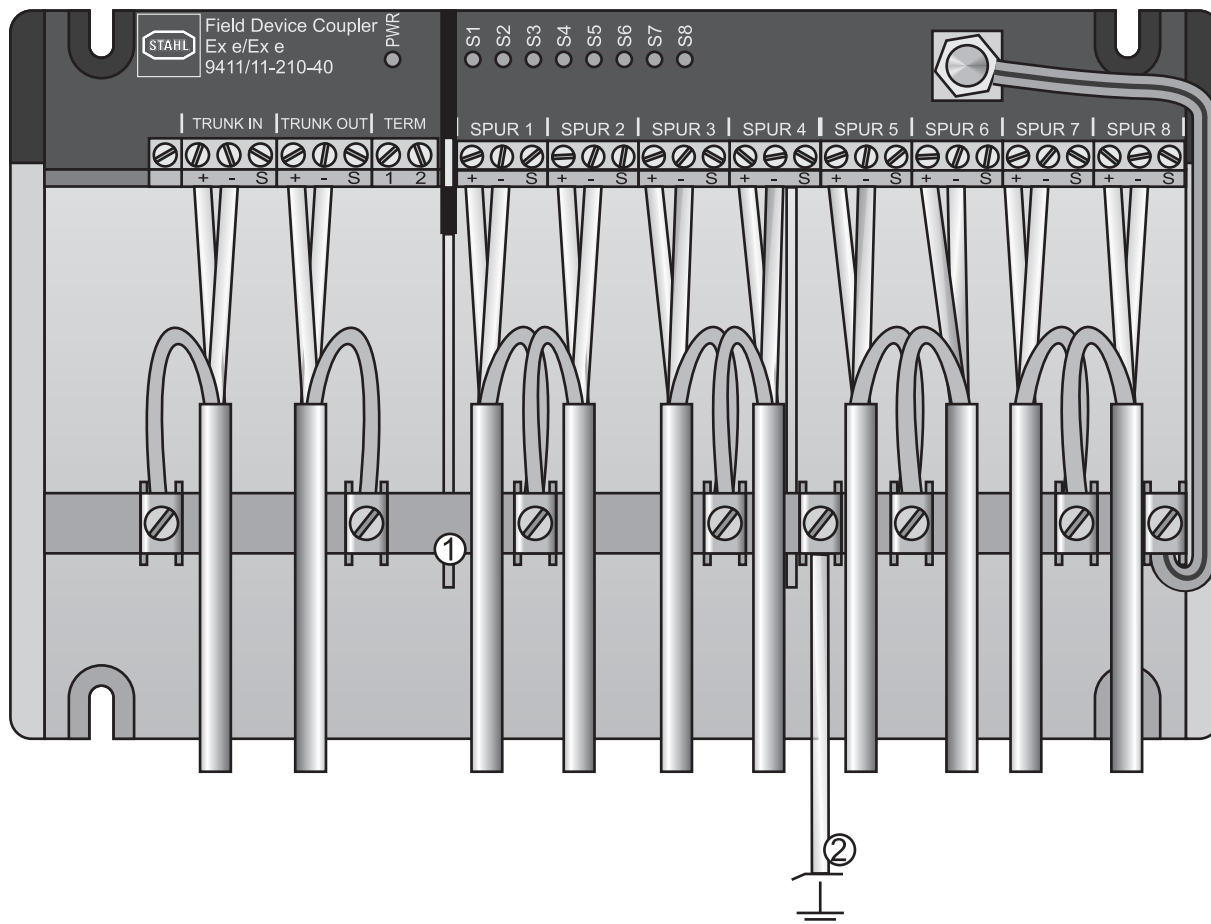
## 10.6 Earthing of cable shields

There are many, and sometimes inconsistent, regulations regarding earthing of cable shielding:

- ✗ IEC / EN 60079-14, section 12.2.2.3
- ✗ Profibus Technical Guideline „Profibus PA“ User and Installation Guideline, section 3.3.3
- ✗ Fieldbus Foundation „System Engineering Guidelines“ AG 181, section 6.2f


## If high-quality potential equalisation exists within the plant:

	<p>This shielding concept is recommended by R. STAHL. The direct earthing the cable shielding at both cable ends is the best solution in view of electromagnetic compatibility. The prerequisite for this is high-quality potential equalisation.</p>
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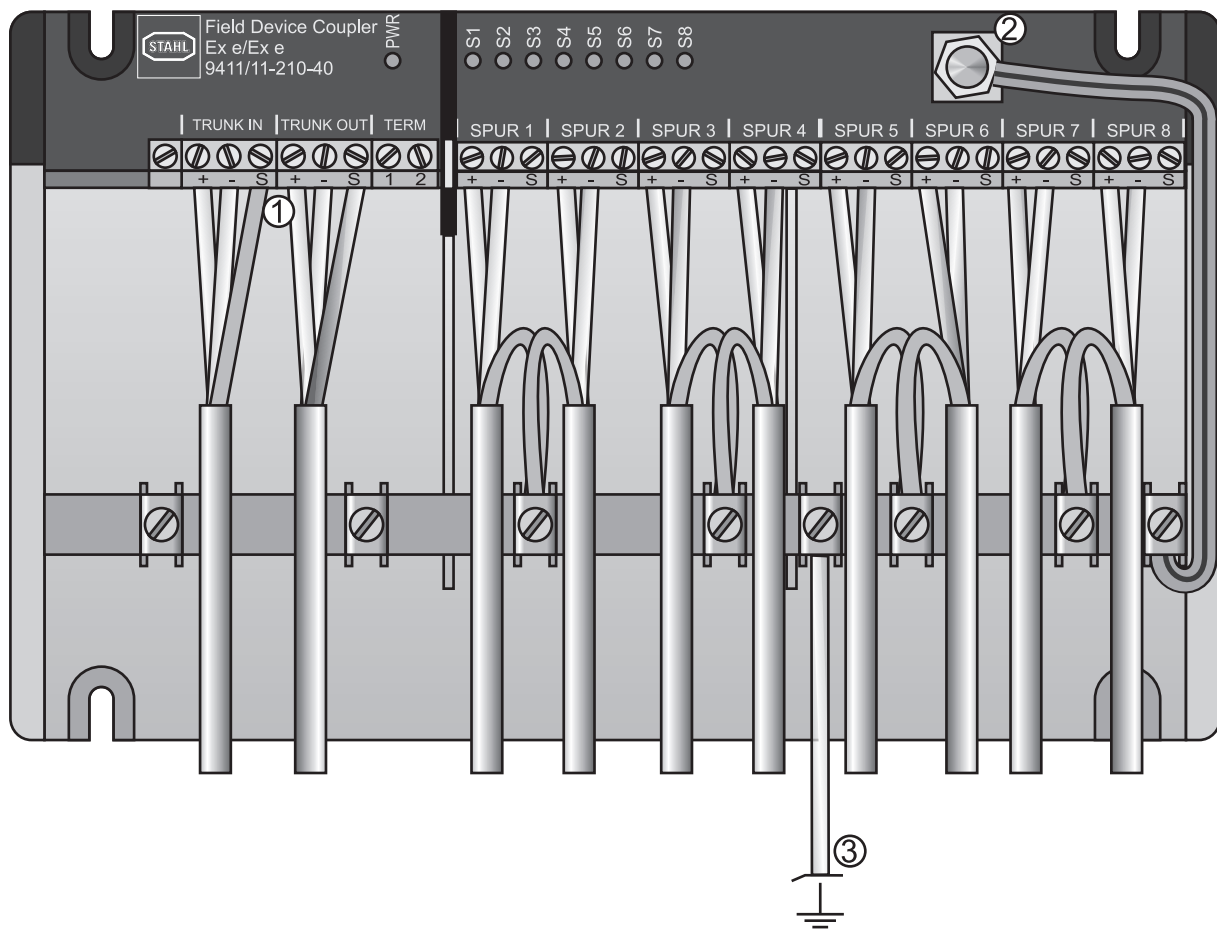
11188E00

- Lay all cable shields of the trunk and spurs on the cable screen bus bar (1).
- Connect the cable screen bus bar to earth via the shortest possible route (2).

	<p>When mounting directly (with screws) in metal enclosure 8125, the earthing bolt is electrically connected via mounting to the enclosure.</p>
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- Directly earth the cable shield of the trunk at the host/fieldbus power supply side (as a rule, at the fieldbus power supply).
- Directly earth the cable shields of the spurs at the field devices.

## If no high-quality potential equalisation exists within the plant:



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- ▶ Connect the cable shields of the trunk to the “TRUNK IN S” terminals and, if needed, to the “TRUNK OUT S” (1).
- ▶ Connect the earthing bolt (2) with the cable screen bus bar so that good conductance is achieved (delivery condition from factory).
- ▶ Connect the cable screen bus bar to earth via the shortest possible route (3).
- ▷ In this way, the cable shield of the trunk is capacitively earthed.



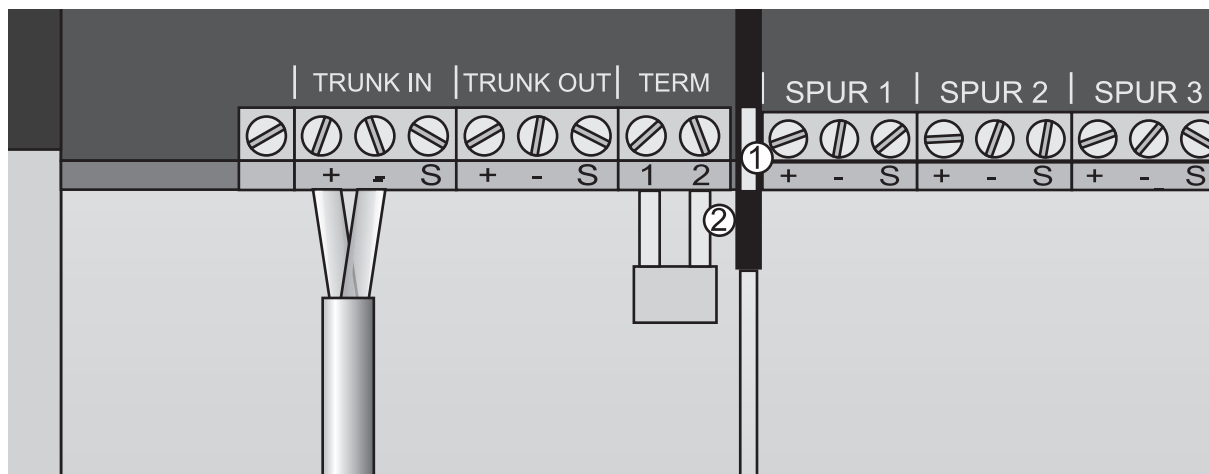
When mounting directly (with screws) in metal enclosure 8125, the earthing bolt is electrically connected via mounting to the enclosure.

- ▶ Lay the cable shields of the spurs on the cable screen bus bar.
- ▶ Directly earth the cable shield of the trunk at the host/fieldbus power supply side (as a rule, at the fieldbus power supply).
- ▶ Insulate the cable shields of the spurs connecting at the field devices. Do not earth them.


## 10.7 Terminating resistor (terminator)

	A terminating resistor is required at both ends of the trunk. Spurs are operated without terminating resistors.
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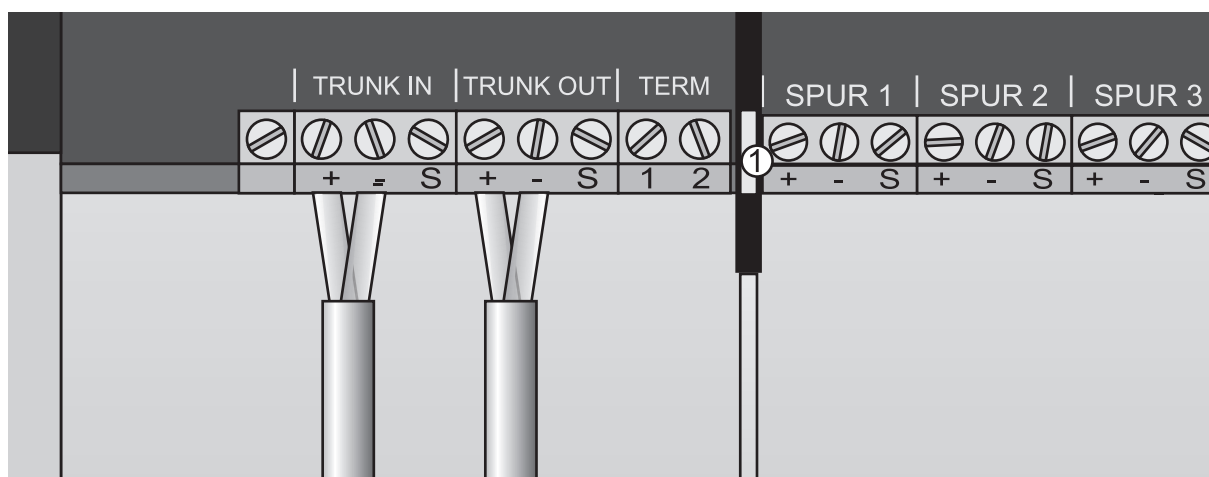
**Field device coupler is located at the end of the trunk**




11191E00

	The terminals on the "TRUNK OUT" terminal block are not to be used.
▶ Remove the factory-provided jumper from the park position (1).	
▶ Insert the jumper in terminals "1" and "2" on the "TERM" terminal block (2).	
▶ Close/screw tight the terminals.	
▷ The built-in terminating resistor is activated.	

**Field device coupler is not located at the end of the trunk**



	The terminals on the "TERM" terminal block are not to be used.
▶ Insert the factory-provided jumper in the park position (1).	
▷ The built-in terminating resistor is not activated.	

## 11 Putting into Service

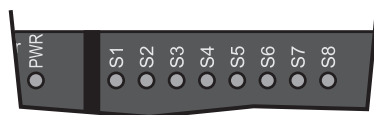
### Before commissioning

- ▶ Test the components for correct operation and installation in accordance with the operating instructions and other applicable specifications.
- ▶ Check that cables and lines are clamped properly.
- ▶ Inspect housing for damage.
- ▶ Inspect housing for foreign bodies.
- ▶ Check whether all unused cableglands and holes are sealed off properly.
- ▶ The voltage on the trunk must be at least 12 V DC.
- ▶ The voltage to the connected field devices must be at least 9 V DC.

### Commissioning

- ▶ Observe the national regulations when commissioning.
- ▶ Follow the Directives in accordance with EN 60079-17 when conducting function inspections.

### LED indicators, functional description



11189E00

PWR, green	S (1 ... 4) resp. S (1 ... 8), red	Description
OFF		No voltage on the trunk
ON		Voltage on trunk o.k. $U \geq 12 \text{ V}$
	OFF	Open-circuit on the corresponding spur
		Spur not connected
		Corresponding spur on field device connected, $0 \text{ mA} \leq I \leq 40 \text{ mA}$
	ON	Short-circuit on the corresponding spur $40 \text{ mA} \leq I \leq 50 \text{ mA}$


## 12 Maintenance

### 12.1 Regular Maintenance Work


- ▶ Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- ▶ Plan the intervals so that any defects in the equipment which may be anticipated are promptly detected.

#### To check as part of the maintenance schedule:

- ✗ Check that cables and lines are clamped properly.
- ✗ Tightness of the cable glands.
- ✗ Inspect the enclosure for visual damage.
- ✗ Check the seal between enclosure and cover.
- ✗ Check the enclosure for moisture
- ✗ Check the compliance with the permitted temperatures.
- ✗ Make sure that the device is used according to its designated use.

⚠ WARNING	
	<p><b>Danger from energised parts!</b></p> <ul style="list-style-type: none"> <li>▷ Explosion protection is not guaranteed any longer.</li> <li>▶ Switch off the power to the fieldbus before opening the enclosure cover.</li> <li>▶ Secure the fieldbus against unauthorised activation.</li> </ul>

### 12.2 Repair work

⚠ WARNING	
	<p><b>Danger due to improper maintenance/repairs</b></p> <ul style="list-style-type: none"> <li>▷ Explosion protection is not guaranteed any longer.</li> <li>▶ Repair work to the device must only be performed by R. STAHL.</li> </ul>

### 12.3 Cleaning

- ✗ Clean with a cloth, brush, vacuum cleaner or similar items.
- ✗ When cleaning with a damp cloth use water or mild, non-abrasive, non-scratching cleaning agents.
- ✗ Never use aggressive cleaning agents or solvents.

## 13 EC Declaration of Conformity

### EG-Konformitätserklärung EC-Declaration of Conformity Déclaration de Conformité CE



Wir, we, nous

R. STAHL Schaltgeräte GmbH, Am Bahnhof 30, 74638 Waldenburg, Germany

9411/11-2de-f0

d = 1, 2 e = 0, 1, 2  
f = 3, 4

erklären in alleiniger Verantwortung, dass das Produkt  
hereby declare in our sole responsibility, that the product  
déclarons, sous notre seule responsabilité, que le produit

Feldgerätekoppler  
Field device coupler  
Coupleur pour appareils de terrain

mit der EG-Baumusterprüfbescheinigung:  
under EC-Type Examination Certificate:  
avec Attestation d'examen CE de type:

**BVS 06 ATEX E 003 X**  
(DEKRA EXAM GmbH  
Dinnendahlstraße 9, 44809 Bochum)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt  
which is the subject of this declaration, is in conformity with the following standards or normative documents  
auquel cette déclaration se rapporte, est conforme aux normes ou aux documents normatifs suivants

Bestimmungen der Richtlinie Terms of the directive Prescription de la directive	Nummer sowie Ausgabedatum der Norm Number and date of issue of the standard Numéro ainsi que date d'émission de la norme
94/9/EG: ATEX-Richtlinie 94/9/EC: ATEX Directive 94/9/CE: Directive ATEX	EN 60079-0: 2009 EN 60079-7: 2007 EN 60079-18: 2004 EN 61241-0: 2006 EN 61241-1: 2004
2004/108/EG: EMV-Richtlinie 2004/108/EC: EMC Directive 2004/108/CE: Directive CEM	EN 61326-1: 2006
Allgemeine Normen ohne Bezug auf eine Richtlinie General standards without reference to a directive Normes générales sans référence à une directive	EN 50178: 1997 EN 61010-1: 2001

Waldenburg, 23.11.2010

Ort und Datum  
Place and date  
Lieu et date

J.-P. Rückgauer  
Leiter Entwicklung und Technik  
Director Design and Technology  
Directeur Développement et Technique

Dr. S. Jung  
Leiter Qualitätsmanagement  
Director Quality Management Dept.  
Directeur Dép. Assurance de Qualité

F-4174-601 11/2009 STMZ

9411 6 002 004 0\_02





# 14 Certification Drawing

The Type 9411/11-2\*\*-\*0 Field Device Coupler is an Explosion protected device for installation in Class I, Division 1 / Zone 1 or Class I, II, III, Division 2, Groups A-G hazardous areas and provides increased safety terminals for safe connection of non I.S. fieldbus circuits.

Field device coupler Type 9411/11-2ab-c0

a = numeral 1 or 2 for design of terminal

1 = Screw type terminals;

2 = Cage clamp terminals

b = numeral 0, 3 or 4 for Protective Enclosure

0 = without;

3 = Plastic (Type 8146);

4 = Metal (Type 8125)

c = numeral 3 or 4 for number of Channels

3 = 4 Channels;

4 = 8 Channels

Nominal values are as follows:


	V <sub>nom</sub>	I <sub>nom</sub> (4 channel at 40mA)	I <sub>nom</sub> (8 channel at 40mA)
Terminal TRUNK + / -	24 V (12 to 32 V)	182 mA	342 mA
Terminal SPUR + / -	24 V (12 to 32 V)	≤ 40 mA	≤ 40 mA

Notes:

- For Connections refer to chapter 10 of Operation instruction ID-Nr. 9411 6 031 002 0.
- Installation should be in accordance with Article 504/505 of the National Electrical Code, ANSI/NFPA 70
- Installation in Canada should be in accordance with the Canadian Electrical Code, CSA C22.1, Part 1, Appendix F.
- Each channel shall be installed within a separately shielded cable or a single cable with a separate shield for each channel.
- Alternatively use Terminal "S" for connection of the cable shield for capacitive (≤ 5,2 nF) decoupled grounding or use ground busbar terminals for direct ground connection.
- Ambient temperature: -40°C ... +75°C (Type 9411/11-2a0-c0)  
-20°C ... +70°C (Type 9411/11-2ab-c0, b = 3, 4)
- The following only applies for Type 9411/11-2a0-c0
  - Use a general purpose enclosure meeting the requirements of ANSI/ISA S82.02.01 for use in non-hazardous or Class I, Division 2, hazardous (classified) locations.
  - Use an FM Approved Dust-ignition proof enclosure appropriate for environmental protection in Class II, Division 1, Groups E,F and G; and Class III, hazardous (classified) locations.
  - The FDC Type 9411/21-2a0-c0 are to be snap mounted on DIN rail or screw mounted on a rail or plate.

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			Certification drawing			
			2006	Date	Name	Title
			Drawn	24.05.	Einsiedler	IS bus - Field Device Coupler Type 9411/11-2**-*0
			Appr.		Kaiser	
						Scale none
						Sheet 1 of 1
01	19.09.06	Einsiedler				Agency FM
Index	Date	Drawn				
			Replaces:		Replaced by:	A4

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